

Appl. No. 10/780,512
Reply to Office Action of April 6, 2005

Attorney Docket No. 2003.0461 / 24061.520
Customer No. 42717

REMARKS

Claims 1-25 are present in the application, and have each been amended. In view of the foregoing amendments, and in view of the following remarks, reconsideration is respectfully requested.

Drawing Amendments

The Office Action objected to the drawings on the ground that reference numeral 12 appears in some drawing figures (Figures 5 and 9), but does not appear in the specification. The foregoing drawing amendments remove reference numeral 12 and the associated lead line from each of Figures 5 and 9.

The Office Action also objected to the drawings on the ground that Claim 8 recites a semiconductor device located outside of a seal ring, but none of the drawing figures show this semiconductor device. The originally-filed specification discusses semiconductor devices that are located inside and outside the seal ring, for example at lines 14-16 on page 4, lines 12-13 on page 5, and in Claim 8. The foregoing drawing amendments therefore add to Figure 8B two broken-line squares with associated reference numerals 86 and 87, in order to diagrammatically represent two semiconductor devices SD, one of which is designated by reference numeral 86 and is located inside the seal ring 81, and the other of which is designated by reference numeral 87 and is located outside the seal ring 81. The foregoing amendments to the specification add a sentence on page 6 to mention the two semiconductor devices SD that are now shown in Figure 8B at 86 and 87.

These changes to the drawings and specification have been structured so as to avoid the introduction of any new matter into the disclosure of the present invention.

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Election-Of-Species Requirement

The Examiner previously imposed an election-of-species requirement, and Applicants previously elected the species of Figure 8B. Applicants previously indicated that the claims readable on Figure 8B include Claims 4 and 24, but not Claims 3 and 23. In lines 7-13 on page 2 of the pending Office Action, the Examiner indicates that the opposite is true. In particular, the Examiner asserts that Claims 4 and 24 do not read onto Figure 8B, but that Claims 3 and 23 do read onto Figure 8B. However, it is respectfully submitted that a person skilled in the art who has read the specification would understand that the focus of Claims 4 and 24 is a configuration shown in several figures (including Figure 8B), whereas the focus of Claims 3 and 23 is a configuration shown in Figure 6 but not in Figure 8B. The foregoing amendments adjust the wording of Claims 3-4 and 23-24 in order to clarify the configurations that these claims are reciting. These amendments do not change the intended scope of Claims 3-4 and 23-24. It should now be more clear that Claims 4 and 24 are directed to subject matter present in the elected species of Figure 8B, whereas Claims 3 and 23 are directed to subject matter that is not present in Figure 8B.

These changes to the claims have been structured so as to avoid the introduction of any new matter into the disclosure of the present invention.

Claim Objections

In the section of the Office Action that bridges pages 3-4, the Examiner raised several objections to the claims, and required appropriate correction. The foregoing amendments to the claims are intended to cure each ground of objection identified by the Examiner. These changes are designed to improve the form of the claims, without altering the intended scope of the claims.

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Second Paragraph of 35 U.S.C. §112

The Office Action rejected Claims 2, 6, 8, 20 and 23 as indefinite under the second paragraph of 35 U.S.C. §112, enumerating specific objections to each of these claims.

The foregoing amendments to Claims 8 and 23 are intended to cure each ground of objection identified with respect to these two claims. These changes improve the form of Claims 8 and 23, without altering the intended scope of these claims. It is respectfully submitted that Claims 8 and 23 are now in compliance with the second paragraph of §112, and notice to that effect is respectfully requested.

As to Claim 6, Applicants respectfully traverse the §112 rejection. More specifically, Claim 6 uses the word "about", and the Office Action asserts that the word "about" is indefinite because it is a relative term. However, MPEP §2173.05(b) deals with relative terminology such as "about", "essentially", and "substantially", and acknowledges that such "broadening modifiers are standard tools in claim drafting in order to avoid reliance on the doctrine of equivalents in infringement actions". MPEP §2173.05(b) explains that:

The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph. . . . Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.
(Emphasis added).

In other words, relative terminology is not automatically indefinite, and must be evaluated in the context of the specific facts of each application. In rejecting Claim 6 under §112, the present Office Action does nothing more than make an unsupported and conclusory assertion of

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indefiniteness, in particular by doing nothing more than quoting "boilerplate" language that states:

The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The Office Action does not provide any discussion at all of the specific context in which the word "about" is used in the present application, and in particular does not contain any discussion specific to the subject matter and language of claim 6, and/or the subject matter and language of the specification. In effect, the Office Action asserts that the word "about" is automatically objectionable because it is a relative term. However, this approach is directly contrary to the MPEP. As noted above, the MPEP specifies that: "The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph". MPEP §2173.05(b) goes on to discuss the specific word "about", and notes that "about" is not automatically indefinite. Accordingly, since the Office Action improperly treats the word "about" as being automatically indefinite, without giving any factual reason as to why it might possibly be considered indefinite in the specific context of the subject matter recited in Claim 6, it is respectfully submitted that the §112 rejection of Claim 6 is inherently improper, and should be withdrawn.

Turning now to Claims 2 and 20, Applicants respectfully traverse the §112 rejection of each of these claims. More specifically, Claims 2 and 20 each use the word "sharp", and the Office Action asserts that the word "sharp" is indefinite because it is a relative term. The approach taken in this §112 rejection of Claims 2 and 20 is the same approach taken in the §112 rejection of Claim 6 for use of the word "about". In particular, the Office Action improperly

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treats the word "sharp" as being automatically indefinite, without giving any factual reason as to why "sharp" might possibly be considered indefinite in the specific context of the subject matter recited in either Claim 2 or Claim 20. Accordingly, for the same basic reasons discussed above in association with Claim 6, it is respectfully submitted that the §112 rejection of Claims 2 and 20 is inherently improper, and should be withdrawn.

Independent Claim 16

Independent Claim 16 stands rejected under 35 U.S.C. §102 as anticipated by Tsuji U.S. Patent No. 6,291,835. This ground of rejection is respectfully traversed, for the following reasons.

The PTO specifies in MPEP §2131 that, in order for a reference to anticipate a claim under §102, the reference must teach each and every element recited in the claim. Claim 16 of the present application expressly recites "a seal ring enclosing said semiconductor device structures". The Office Action asserts that the single drawing of Tsuji discloses a seal ring at 4. Applicants respectfully disagree. Although at first glance the element 4 in Tsuji may look somewhat like a seal ring, Tsuji teaches at lines 51-52 of column 2 that it is actually:

A scribed line 4 for separating the chips in the semiconductor integrated circuit board 1 It should be noted that the hatched range of the scribed line 4 shows the range where a metal such as aluminum etc. is formed at the same time as the in-chip circuit regions 2, in order to facilitate observation at the time of the processing of separation grooves.

In other words, the scribe line 4 in the drawing of Tsuji corresponds generally to the scribe line 26 shown in the right side of Figure 5 of the present application, but is not even remotely

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comparable to the seal ring shown in the left side of Figure 5 of the present application (or the variations of this seal ring that are shown in other figures). Since Tsuji does not disclose any seal ring, Tsuji fails to disclose each and every element recited in Claim 16, and thus does not anticipate Claim 16 under §102. Accordingly, Claim 16 is believed to be allowable over Tsuji, and notice to that effect is respectfully requested.

Independent Claim 1

Independent Claim 1 stands rejected under 35 USC §103 on the ground that it would be obvious over Tsuji, considered in light of Ma U.S. Patent No. 6,509,622. This ground of rejection is respectfully traversed. In this regard, the PTO recognizes in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Tsuji and Ma fail to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for the mutually exclusive reasons that are discussed below.

TSUJI DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

The Office Action asserts that the single drawing of Tsuji discloses a seal ring at 4. However, as discussed above in association with Claim 16, the element 4 in Tsuji is a scribe line, rather than a seal ring. In fact, Tsuji does not include any disclosure of a seal ring, and thus fails to teach what the Office Action says it does. Tsuji therefore fails to fulfill its intended role in the §103 rejection. Accordingly, for this independent reason alone, it is respectfully submitted that

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Claim 1 is not obvious under §103 in view of the combined teachings of Tsuji and Ma, and notice to that effect is respectfully requested.

MA DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

The Office Action asserts that Figure 2 of Ma discloses a plurality of layers of metal lines 205-209 that are connected by a plurality of metal vias 211-215. However, the elements 211-215 are not vias. More specifically, the elements 211-215 are each located in a dielectric layer that also contains vias, but the elements 211-215 are not vias. Instead, they are each a continuous ring of metal that extends around the perimeter of a die. Thus, the Ma patent also fails to teach what the Office Action says it does. Ma therefore fails to fulfill its intended role in the §103 rejection. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 1 is not obvious under §103 in view of the combined teachings of Tsuji and Ma, and notice to that effect is respectfully requested.

THE PROPOSED COMBINATION DOESN'T TEACH THE CLAIMED SUBJECT MATTER

Tsuji and Ma, even when combined, do not teach the subject matter of Claim 1. The provisions of MPEP §2142 specify with respect to §103 that:

To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added).

In the present application, Claim 1 recites that:

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said plurality of layers of interconnected metal lines forms a
continuous seal ring around a die; and

wherein a first width of said metal lines at a corner of said
die is wider than a second width of said metal lines at edges of
said die.

Neither Tsuji nor Ma discloses a seal ring in which "a first width of said metal lines at a corner of said die is wider than a second width of said metal lines at edges of said die". Consequently, even if combined, these two prior art references do not teach all of the limitations recited in Claim 1. They therefore fail to establish a prima facie case of obviousness under §103. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 1 is not obvious under §103 in view of the teachings of Tsuji and Ma, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that Claim 1 is not rendered obvious under §103 by Tsuji and Ma. Claim 1 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-8 and Claims 17-25 respectively depend from Claim 1 and Claim 16, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1 and 16, respectively.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way

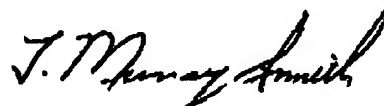
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by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no fee is due in association with the filing of this Amendment, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP.

Respectfully submitted,



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Enclosure: Replacement Drawings Sheets 2, 3 and 4

R-108146.1

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Amendments To The Drawings

One of three attached drawing sheets includes Figures 4, 5 and 6, and replaces the original drawing sheet that included Figures 4, 5 and 6. In Figure 5, reference numeral 12 and the associated lead line have been removed.

Another of the three attached drawing sheets includes Figures 7, 8A and 8B, and replaces the original drawing sheet that included Figures 7, 8A and 8B. In Figure 8B, squares have been added in broken lines at 86 and 87 in order to diagrammatically represent respective semiconductor devices SD that are discussed in the originally-filed specification.

Still another of the three attached drawing sheets includes Figures 8C, 9 and 10, and replaces the original drawing sheet that included Figures 8C, 9 and 10. In Figure 9, reference numeral 12 and the associated lead line have been removed.

Attachment: Replacement Sheets 2, 3 and 4